



Buena Vista & Leola Marsh Wildlife Areas Interim Forest Management Plan

Property Identifiers

Property Name: Buena Vista Wildlife Area (BV)

DNR Property Code: 5012

Property Name: Leola Marsh Wildlife Area (LE)

DNR Property code: 0116

Property Locations: Portage (BV) and Adams (LE) County

Property Acreage: 13,552 (BV), 1875 (LE)

Master Plan Date: 1982. Not an NR44 compliant master plan.

Part 1: Property Assessment

General Property Description

A. Landscape Description and Area History

Both properties lie within the Central Sand Plains Ecological Landscape. This landscape lies on a flat, sandy plain on what was once Glacial Lake Wisconsin, a glacial meltwater.

The general area encompassing Buena Vista and Leola Marsh Wildlife Area was formerly a marsh dominated by tamarack, black spruce, and cattails. In the early 1900's, it was drained for agricultural purposes. The eastern portion of the Central Sand Plains is currently a mix of crops, managed grasslands, and scattered woodlots of oak, pine, and aspen. The principal land uses within the Landscape in this area are agriculture, recreation, and timber production. Specifically in this area, grazing, potatoes and cranberry production are common.

B. Geology & Landforms:

This area was entirely glaciated and lies within what was once known as Glacial Lake Wisconsin, a glacial meltwater. Glacial till is the primary material type deposited. Sand was deposited in Glacial Lake Wisconsin by outwash from melting glaciers.

Also found in this landscape are sandstone buttes also known as castellated mounds. These were carved by rapid draining of the glacial lake or eroded by waves when they existed as islands in the glacial lake. One such mound known as Owen's Rock is found on the Leola Marsh Wildlife area.



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C. *Property Specifics.*

Overall management of the properties are to achieve the goal of protecting and enhancing large, open grassland habitat with different vegetation heights and densities to meet seasonal habitat needs of numerous grassland-dependent wildlife species. Management activities are utilized by rotating them spatially and temporally. Management activities utilized include prescribed fire; planting grass and forb (flower) species; mowing of woody brush and invasive, herbaceous species; herbicide application; sharecropping (hay, row crop); timber harvest; invasive species biocontrol; and grazing (continuous and managed/rotational).

Buena Vista Wildlife Area

Currently, there is roughly 110 miles of drainage ditches on the property. Kentucky bluegrass seed harvesting occurred for a few decades, eventually falling to competition from grazing until the mid-1960's. Currently, row crops with center pivot irrigation are a large component of the land use in the area.

The entire property totals 13,552 acres. Of this, 9,240 acres are DNR owned, 4,252 acres are owned by the Dane County Conservation League and managed by the DNR, and 60 acres are owned by the Wisconsin Society for Ornithology and managed by the DNR. The majority of the property consists of non-native, cool season grasses, with moist depressions possessing disturbance-associated wetland species such as Kentucky bluegrass, Canada goldenrod, meadow willow, and white meadowsweet and shallow rises containing smoothbrome, Canada bluegrass, timothy, spotted knapweed, and some scattered native species (e.g. big bluestem, little bluestem).

Roughly 75% of the soils at Buena Vista Wildlife Area are muck, with loamy sands in the other areas. There are numerous scattered frost pockets within this area.

The hydrology of this area has been greatly altered by past drainage, channelization, and groundwater withdrawal, particularly for agricultural purposes. Some of these ditches include Buena Vista Creek (Ditch No. 2), a Class II Trout Stream, Fourmile Creek (Ditch No. 4), a Class I Trout Stream, North Branch of Tenmile Creek, South Branch of Tenmile Creek (Class I Trout Stream), and Tenmile Creek – Mile 1-5 (Ditch No. 10).

Leola Marsh Wildlife Area

The Department began purchasing land for the Leola Marsh project in 1956, and DNR ownership now totals 1875 acres. Similar to Buena Vista, drainage ditches were installed in the early 1900's and around 40 miles are present in the Leola project area. The Leola Ditch, which travels from west to east along Cty Rd D, is a class II Trout Stream. Adjacent land uses consist of irrigated row crops, grazing land for beef cattle, cranberry production, and some timber production.

The state land is mostly vegetated by similar cool-season grass species observed on Buena Vista, along with some areas of giant ragweed and nettles. The slightly higher, loamy sand rises harbor the most desirable vegetation on the property. Switchgrass and little bluestem are found in these areas, along with some forbs such as lupine. Brushy areas comprised of willow and dogwood species are found throughout the property as well.

The soils composition is also similar to Buena Vista with the majority of the area comprised of muck soil types, while the gradual rises are mostly loamy sands.



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D. Current Forest Types, Size Classes and Successional Stages

Buena Vista Wildlife Area

The property consists of 13,552 acres. Forested acres total 1,099 (8%) and non-forested acres total 12,453 (92%).

Table 1. Buena Vista Wildlife Area Cover Type Overview

Cover Type	Acres
Oak	16
Aspen	1,083
Herbaceous Vegetation	12,453

Overall timber types, acreage by age class is distributed across the 1-10 year class up to the 100 year age class, with the majority of acres in the 11-20 year age class. See table 2 below for acreage by age class and timber type.

Table 2. Age Class and Timber Type

<u>AgeClass</u>	<u>Acres</u>	Aspen	Oak
1-10	273	283	
11-20	536	536	
21-30	173	173	
31-40	91	91	
41-50	0		
51-60	0		
61-70	16		16
71-80	0		
81-90	0		
91-100	0		
100+	0		
Total	1,099	1,083	16



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Leola Marsh Wildlife Area

The Leola Marsh Wildlife Area is a 1,875 acre property where 62 acres (4%) are forested and 1,813 acres (97%) are typed as herbaceous vegetation. All of the 62 acres of forest are scheduled for active management with timber harvesting being implemented to improve forest health, growing vigor, and habitat for wildlife species. At this time both the Black Oak as well as the Aspen stands are estimated to be 30 years old.

Table 3. Leola Marsh Wildlife Area Cover Type Overview

Cover Type	Acres
Black Oak	47
Aspen	15
Herbaceous Vegetation	1,813

Below are the characteristics of the timber types that are found on the two properties.

Aspen: Aspen Forests consist predominately of trembling aspen (also known as quaking aspen and white popple) and bigtooth aspen (also known as yellow popple). Aspen forests in the northern parts of the state sometimes contain balsam poplar, but none are known to exist on the Leola and Buena Vista property. Red maple, paper birch, balsam fir, red oak, white pine and other native trees commonly grow with Aspen. Aspen is a relatively short-lived tree that usually regenerates all at once following a major disturbance such as wind, fire or cutting. Aspen requires full sunlight and does not grow well in the shade of taller trees. Aspen grows best on well-drained loamy soils but can do well within a wide range of soil conditions. Clearcutting (coppice) is the best method to regenerate aspen. The target rotation age for aspen on the Leola and Buena Vista property is 45- 50 years.

Oak: Oak Forests are composed of over 50% oak. In Wisconsin, red oak, black oak, pin oak, white oak, and bur oak are common types of oak trees. Aspen, red maple, hickory, white pine, white birch, basswood, black cherry, sugar maple, elm, and jack pine commonly grow in oak forests. Oak forests are abundant, occurring throughout the state and growing on most soil types. Composition of oak forests varies depending on their location within Wisconsin and on site quality. On nutrient-poor, dry sites, oak forests might include black oak, white oak, northern pin oak, and bur oak. On dry sites, hickories, black cherry, aspen, red maple, and paper birch commonly grow with oak. In northern Wisconsin, pines may also grow in dry oak forests. Sites with a better nutrient and moisture supply may support mixtures of red and white oak, or may be dominantly red oak. On sites with more nutrients, basswood, hickories, ironwood, black cherry, elms, red maple, or white pine may grow with oak. On the richest sites, sugar maple or white ash might also grow with oak. While oaks are still very common trees in Wisconsin, the abundance of high-quality red and white oaks on nutrient-rich sites has declined considerably due to forest succession and failed regeneration. In general, oaks grow best on well-drained loamy soils. All oaks require drastic disturbance of the forest, both overstory and understory, in order to regenerate. On richer sites, oak forests are particularly difficult to regenerate and competition control is essential. Fire is one tool that facilitates the regeneration and maintenance of oak forests. To regenerate oak, foresters commonly mimic the effects of fire using mechanical tools or chemical application.



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E. NHI: Endangered, Threatened, Special Concern Species, Species of Greatest Conservation Need (SGCN)

There is one federally endangered insect, two state endangered species (1 insect and 1 bird), 5 state threatened species (4 birds and 1 Herptile) and eleven state special concern species identified within the general vicinity of the property. Negative impacts to these species will be avoided by following DNR's Species Guidance Documents: <http://dnr.wi.gov/topic/Endangeredresources/guidance.asp>. In cases where species guidance documents haven't yet been developed, avoidance to rare species will occur via practices such as time of year restrictions, modified harvest boundaries, and/or consultation with rare species experts.

The Buena Vista/Leola Grasslands are ranked as the second-highest priority grassland bird landscape in the Central Plains.

Both properties are listed as Important Bird Area (IBA) helped by the presence of the largest population of Greater Prairie-chickens in the state being found on Buena Vista Wildlife Area, the presence of other threatened birds, an endangered bird, as well as the presence of several birds listed as Special Concern (SC) or Species of Greatest Conservation Need (SGCN).

Species of Greatest Conservation Need, as defined in the Wildlife Action Plan which can be found in the grasslands in this part of the state are: Bobolink, Eastern Meadowlark, Grasshopper Sparrow, Field Sparrow, Vesper Sparrow, Greater Prairie-Chicken, Henslow's Sparrow, Northern Harrier, Short-Eared Owl, Upland Sandpiper, Whooping Crane, Gray Wolf, Blandings Turtle, Regal Fritillary Butterfly

F. Wildlife Action Plan Conservation Opportunity Areas (COA)

Conservation Opportunity Areas (COA) are areas that contain ecological features, natural communities, or SGCN. The Wildlife Action Plan identifies the Central Wisconsin Grassland COA, which holds statewide significance for surrogate grassland communities. Both Buena Vista and Leola fall into the Central Wisconsin Grassland COA. Extensive Grassland Communities are considered a State Important Resource in Wisconsin under the Wildlife Action Plan. These properties consist mostly of non-native grassland, with some native prairie species, as well as pastures and hayfields that are part of the grassland community.

The Buena Vista and Leola Marsh Wildlife Areas also lie within the Central Wisconsin Grassland Conservation Area (CWGCA), which is a landscape-scale grassland protection area established to protect grassland habitat.

G. Significant Cultural or Archeological Features

There are no known cultural or archeological features on the property.

H. Invasive Species

Several non-native, invasive species are present within the property. Herbaceous, non-native, invasive species present include Spotted Knapweed, Butter-and-eggs, Canada Thistle, Common St. John's-wort, Cypress Spurge, Orange Hawkweed, Common Tansy, Quackgrass, Reed Canary Grass, and Smooth Brome.



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Most woody invasive species present include different species of Spirea and Willow.

Management activities are conducted to slow the spread of such invasive species, including mowing, herbicide application, prescribed burning, managed rotational grazing, and the use of bio-control.

I. Existing State Natural Areas (SNA) Designations/Natural Community Types Limited in the Landscape

Two SNAs lie within the Buena Vista Wildlife Area. The Buena Vista Quarry Prairie SNA, a 40-acre parcel, is located in the southwestern portion of the property and contains one of the least disturbed tracts within the wildlife area with the only location of a remnant prairie on the property (two acres in size). There is an oak knoll in the southeastern corner where remnant dry and dry-mesic prairie species grow on a sandstone outcrop. There are gentle ridges that are being reinvaded by prairie species, such as little bluestem, Indian grass, big bluestem, and rough blazing star. The lower areas between the ridges are dominated by blue grass, sedges, and willows. The other SNA is the Buena Vista Prairie Chicken Meadow SNA, an 80-acre parcel located in the northwestern portion of the property. Depressions on this parcel retain some organic matter and support sedges, bulrush, and willow. Most of the SNA contains bluegrass. This SNA contains a pesticide and herbicide-free area.

J. Biotic Inventory Status

Biotic inventories are complete for this property. Some of the surveys conducted on the property in 2015 include rare plants, natural community, small mammal, Lepidopteran, and Greater Prairie-chicken. The Draft report of the "Rapid Ecological Assessment for Central Sand Plains Planning Group" was completed in February 2016.

K. Deferral/Consultation Area Designations

The Central Sand Plains Rapid Ecological Assessment identified one Primary Site on the property due the presence of rare natural communities that is placed in Consultation status. This site was designated the "Buena Vista Leola Grasslands" and is a wide expanse of non-native, cool season grassland (>19,000 acres) that holds statewide significance for supporting rare and declining grassland birds, as well as several rare butterflies. Some larger forested blocks found on these properties were not included in the primary site designation. Timber sales and other management actions within consultation sites require review by Bureau of Natural Heritage Conservation and other affected programs prior to establishment. Management actions may need to be deferred or modified.

L. Primary Public Uses (recreation)

Hunting, trapping, dog training, and bird watching/wildlife viewing are primary uses. Fishing occurs within the drainage ditches on the property. Other uses include hiking and cross country skiing (no designated trails), and wild edibles gathering. Two dog trials occur on the Buena Vista Wildlife Area in September annually. Celestial observation is also a common occurrence at Owen's Rock on Leola Marsh Wildlife Area.



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Part 2: IFMP components

A. *Management Objectives:* [LE1]

These parcels are managed primarily to provide quality wildlife habitat and protect water quality. Where they occur and plan on being retained, species such as oak and aspen have a great benefit for wildlife as they provide great cover and a primary food source for many wildlife species. Timely harvesting of timber allows managers to encourage a healthy, vigorous forest that is able to naturally fend off stressors such as drought, flood, or insect infestations. Forest management objectives include converting several upland forest types to grass, maintaining areas of existing forest types, and developing a diversity of age classes with emphasis on young but including old forest areas for both game and non-game species dependent on these types. This will largely be accomplished through sustainable silvicultural systems that will increase the diversity and structural complexity of wildlife habitat while at the same time avoid disturbance to riparian areas.

Forest Management Objectives:

1. Oak: Maintain these types where feasible and where grassland conversion is not suitable
 - a. Regenerate oak stands where feasible using even age management harvest oak stands at approximately 60-70 years of age
 - b. Retain large dominant oak trees when feasible for quality seed production and as a source of hard mast for wildlife
 - c. Encourage tree species diversity in oak stands for additional wildlife benefit
2. Aspen: maintain diverse age classes with emphasis on maintaining younger stands
 - a. conduct coppice clearcuts to regenerate aspen when the stands reach the rotation age of 45 - 50 years. [LE2]
3. All Stands
 - a. Promote snags and coarse woody debris.
 - b. Protect hydrology
 - c. Protect rare species

B. *Property Prescriptions* (Identify specific and pertinent prescriptions by area or forest type, including passive management areas, extended rotation, and other information that will help achieve the objectives)

All stands –

- Utilize BMP's for Water Quality to protect streams and wetlands when conducting timber sales.
 - Utilize BMP's for Invasive Species to help limit the introduction and spread of invasive species when conducting timber sales
 - Retain reserve/legacy/green tree retention trees as groups or individuals throughout the property within harvested stands
- Follow DNR's Species Guidance Documents:
<http://dnr.wi.gov/topic/EndangeredResources/guidance.asp>. to protect rare species. In cases where species guidance documents haven't yet been developed, avoidance to rare species will occur via practices such as time of year restrictions, modified harvest boundaries, and/or consultation with rare species experts.



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C. Summary of Public Involvement and Comments Received

D. Maps

- Buena Vista Property Boundary and Ownership Maps – Appendix A
- Leola Marsh Wildlife Area Boundary Map – Appendix B
- Buena Vista Forest Cover Area Map – Appendix C
- Leola Forest Cover Area Maps – Appendix D

Approvals:

Lesa Kardash 5/9/17 Date
BV Property Manager

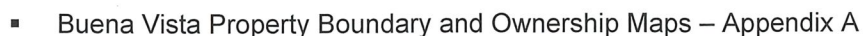
Varren M Sedley 5-9-2017 Date
LE Property Manager

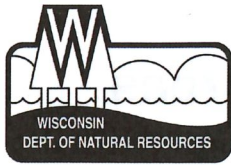
Kim Hansen 5-11-17 Date
Area Program Supervisor

John Eiden 5/13/17 Date
Portage County Forester

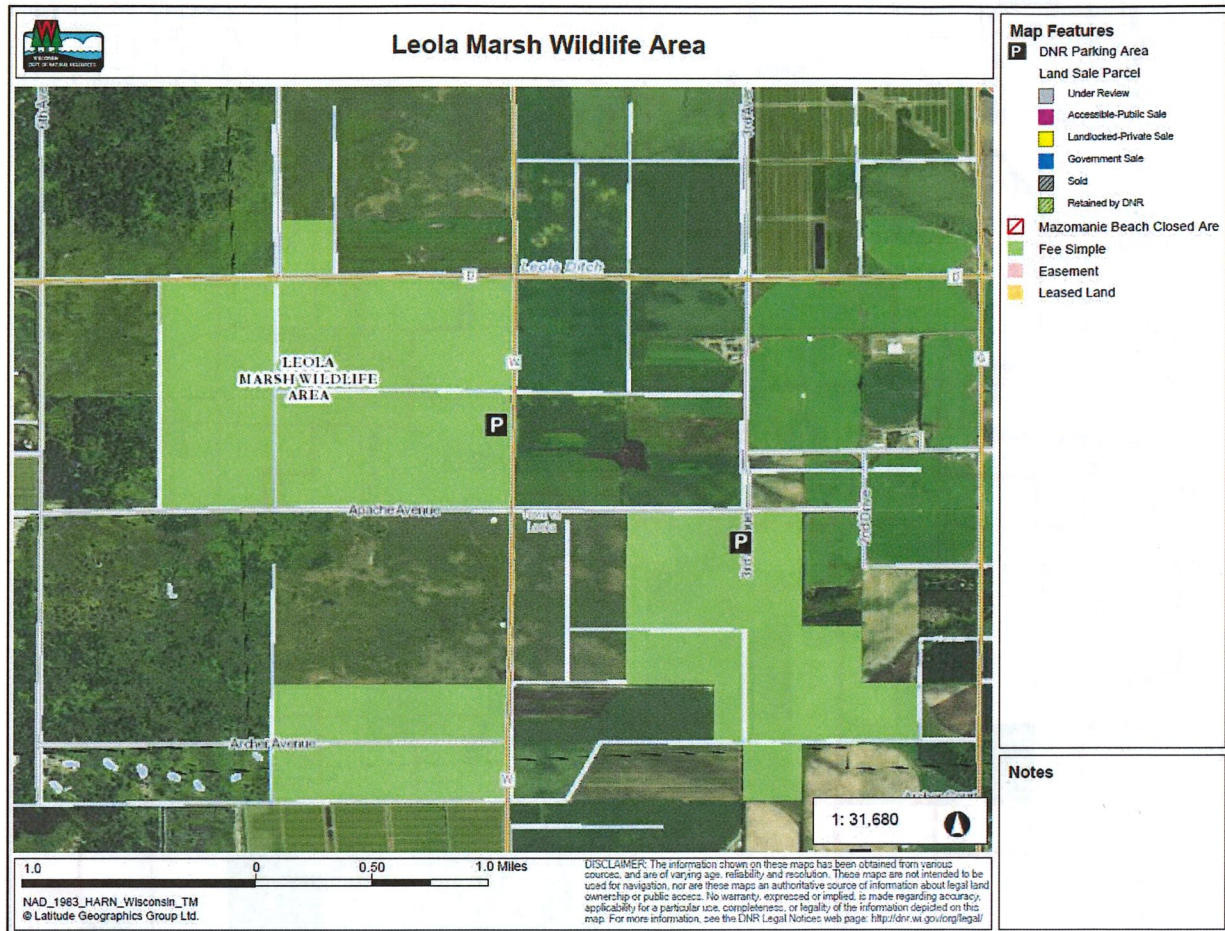
Marc Soss 5-9-17 Date
Adams County Forester

Jon F. Rabalais 5-9-17 Date
District Ecologist





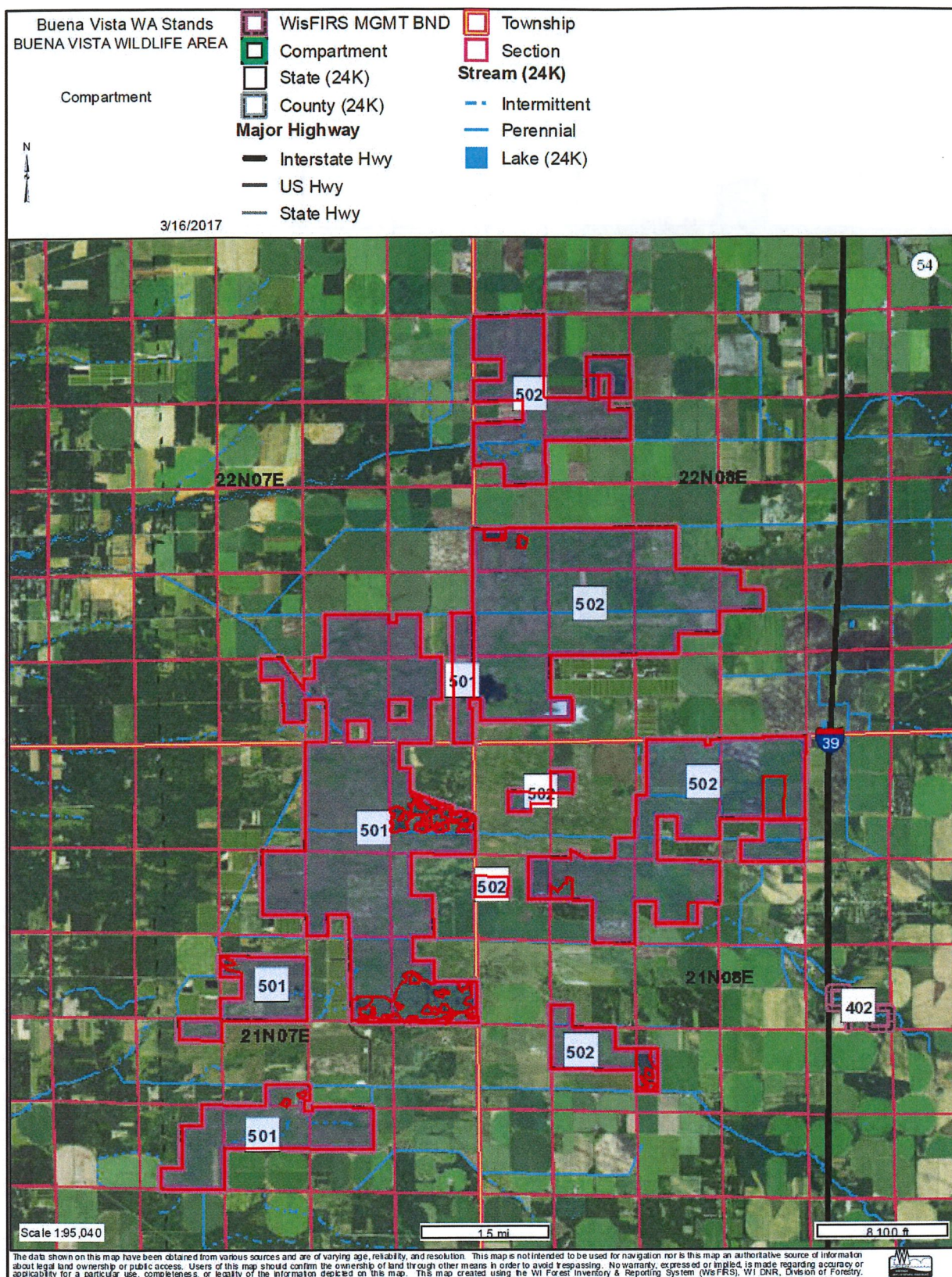
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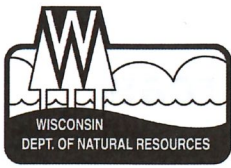
- Leola Marsh Wildlife Area Boundary Map – Appendix B



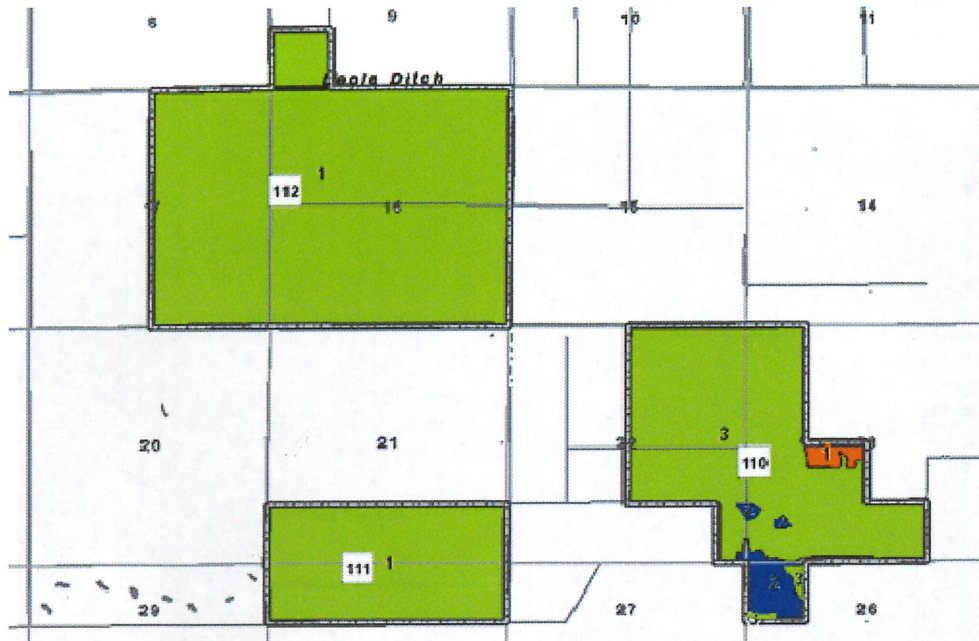
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- Buena Vista Forest Cover Area Map – Appendix C



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- Leola Forest Cover Area Maps - Appendix D